REMARKS

The Examiner has objected to claims 1, 5 and 42 because of the following informalities:

The Examiner contends that claims 1, 5 and 42 recite the following limitation "routing (said) individual ones of said code division multiplexed channel blocks to their destination in accordance with the individual predetermined spreading waveforms." In this limitation, the Examiner states it is not clear as to in which location the limitation "routing" is carried out or performed. Is it performed in gateway, or satellite or any other router?

Applicants argue, "the Examiner states that it is not clear as to which location the limitation "routing" is carried out or performed. The routing, as the claims read now, is in accordance with the individual predetermined spreading waveforms as set out in the claims, thereby obviating this objection. Applicants respectfully submit it is inappropriate to request correction/clarification calling for unnecessary limitations in the claims in the absence of prior art since the claims are clear on their face."

In response, the Examiner stated that whenever claim's interpretation is not clear, rather vague. The objection is therefore valid. Applicants have not responded to the Examiner's question as to the component (location) where the routing is performed. General statement does not specify the location of action/function of the limitation. Appropriate correction/clarification is required.

Applicants note that claims 1, 5 and 42 continue to be objected to because of the following informalities, according to the Examiner:

Claims 1, 5 and 42 recite the following limitation: "routing [[said]] individual ones of said code division multiplexed channel blocks to their destination in accordance with the individual predetermined spreading waveforms." The Examiner states that in this limitation, it is not clear as to in which location the limitation "routing" is carried out or performed. Is it performed in gateway, or satellite or any other router?

Applicants argue "the Examiner states that it is not clear as to in which location the limitation 'routing' is carried out or performed."

"The routing, as the claims read now, is in accordance with the individual predetermined spreading waveforms as set out in the claims, thereby obviating this objection. Applicants respectfully submit it is inappropriate to request correction/ clarification calling for unnecessary limitations in the claims in the absence of prior art since the claims are clear on their face."

In response, it is stated that whenever a claim's interpretation is not clear, the objection is valid. Applicants have not responded to the Examiner's question as to the component (location) where the routing is performed.

Applicants respectfully maintain their position with regard to obviating this objection. Applicants respectfully contend that one of ordinary skill in the art would understand and appreciate that any suitable mechanism or component could be employed to route individual ones of said code division multiplexed channel blocks to their destination in accordance with the individual predetermined spreading waveforms inter alia, as the Examiner suggests, the gateway, satellite or any other router. Applicants respectfully submit, in view of the previously cited suitable components for routing individual ones of said code division multiplexed channel blocks as recited in the claims, this objection is effectively obviated.

The Examiner has rejected claims 1-4 under 35 U.S.C. 102(e) as being anticipated by Harms et al U. S. Patent No. 6,493,376, hereinafter Harms.

The Examiner states for claims 1 and 42, Harms discloses, in reference to Fig. 1, "a method for processing communications in a satellite telecommunications system" (col. 1, lines 12-20), comprising the steps of:

- providing a gateway and a satellite (14 and 16) coupled together through at least one feeder link (42, 46 and 48, forward link, col. 2, lines 40-45), said feeder link conveying a plurality of channel blocks, (refer to Fig. 1, col. 7, lines 20-32, "channelizing codes", col. 1, line 66 to col. 2, line 5);
- code division multiplexing each of said plurality of channel blocks using a predetermined spreading waveform selected to indicate an origin and a destination of each of said plurality of channel blocks (channelizing orthogonal code using PN chip rate, refer to col. 2, lines 3-20);
- transmitting said code division multiplexed channel blocks; and routing said individual ones of said channel blocks to their destination in accordance with the individual predetermined spreading waveforms ("The system users communicate through gateways and satellites, or terrestrial base stations (also referred to as cell-sites or cells) using CDMA spread spectrum communication signals", refer to col. 1, lines 40-45, using preselected PN spreading code -- modulation signals, refer to col. 4, lines 40-45, col. 4, lines 53-55.

Applicants respectfully submit that at col. 1, lines 12-20 of Harms there is stated "The present invention relates to spread spectrum communication systems, such as wireless data or telephone systems, and satellite communication systems. More particularly, the invention relates to a method and apparatus for generating, identifying, and acquiring spread spectrum communication signals using layered or overlayed PN spreading and identifier codes having differing periods or chip rates."

Applicants respectfully submit that at col. 2, lines 40-49 there is stated "Typical CDMA spread spectrum communication systems contemplate the use of coherent modulation and demodulation techniques for forward link user terminal communications. In communication systems using this approach, a 'pilot' signal (or other known signal) can be used as a coherent phase reference for gateway- or satellite-to-user and base station-to-user links. That is, a pilot signal, which typically contains no data modulation, is transmitted by a base station or gateway throughout a given region of coverage." Further, Applicants respectfully submit at col. 7, lines 20-32 relied upon by the Examiner it is recited "An exemplary wireless communication system, such as a wireless telephone system, in which the present invention is used is illustrated in Fig. 1. Communication system 10 illustrated in Fig. 1 uses spread spectrum modulation techniques in communicating between remote or mobile user terminals and system gateways or base stations. In the portion of the communication system illustrated in Fig. 1, one base station 12 and two satellites 14 and 16, and two associated gateway or hubs 24 and 26 are shown for effecting communications with two mobile stations or user terminals 20 and 22, or other stations. The present invention may be useful in either or both satellite or terrestrial based communication systems, as will be readily apparent to those skilled in the art." Further, at col. 1, line 66 to col. 2, line 5 there is stated "In a typical CDMA spread-spectrum communication system, channelizing codes are used to discriminate between signals intended for different users within a cell or between user signals transmitted within a satellite beam, or sub-beam, on a forward link. That is, each user transceiver has its own orthogonal channel provided on the forward link by using a unique 'covering' or 'channelizing' orthogonal code."

Applicants respectfully submit that no where in these recitations is there taught, suggested or implied providing a plurality of channel blocks which are code division multiplexed using a predetermined spreading waveform selected to indicate an origin and a destination of each of said plurality of channel blocks and thereafter transmitting the CDMA channel blocks to their destination in accordance with individual predetermined spreading waveform.

Harms is directed to "A technique for spreading information signals in a spread spectrum communication system to provide increased signal acquisition speed. A first PN spreading code or code set is used to spread information signals along with a second PN spreading code sequence or function. The second PN code is synchronized with the first PN spreading code, but has a larger code period so that each code chip of the second PN code extends over the entire period of the first PN code. The longer period spreading code forms an outer code which helps provide unambiguous beam identification and easily

"acquired frame timing in the presence of dynamically changing signal path delay, improving signal acquisition."

Applicants respectfully submit that they provide a method for processing communications in a satellite telecommunications system which employs channel blocks comprised of numerous code division multiple access channels possibly of various bandwidths that are frequency division multiplexed together which are then code division multiplexed employing a predetermined spreading waveform selected to indicate an origin and a destination of each of the plurality of channel blocks and thereafter transmitting the CDMA multiplexed channel blocks to their destination in accordance with an individual predetermined spreading waveform. This system and method are no where taught, suggested or implied in Harms '376.

Further, Applicants respectfully submit that at col. 2, lines 3-20 there is disclosed that the user transceiver has its own orthogonal channel provided on the forward link by using a unique covering or channelizing orthogonal code. Walsh functions are generally used to implement the channelizing codes....PN code based modulation techniques used in CDMA signal processing allow spectrally similar communication signals to be quickly differentiated. This allows signals traversing different propagation paths to be readily distinguished from each other, provided path length differential causes relative propagation delays in excess of the PN code chip period. Applicants respectfully submit that this does not teach, suggest or imply employing a predetermined spreading waveform selected to indicate an origin and a destination of each of the plurality of channel blocks as required by claims 1 and 42.

Further, with regard to bullet three at col. 1, lines 40-45, Applicants respectfully conclude there is merely disclosed "The system users communicate through gateways and satellites, or terrestrial base stations (also referred to as cell-sites or cells) using CDMA spread spectrum communication signals.

"In a typical spread-spectrum communication system, one or more sets or pairs of preselected pseudorandom noise (PN) code sequences are used to modulate or 'spread' user information signals over a predetermined spectral band prior to modulation onto a carrier for transmission as communication signals." Applicants respectfully submit this does little to cure the deficiencies as noted above with regard to the channel blocks employing the spreading waveform to indicate an origin and a destination of each of plurality of channel blocks and thereafter transmitting in accordance with the predetermined spreading waveform as required by claims 1 and 42. Furthermore, Applicants respectfully submit at col. 4, lines 40-45 and at col. 4, lines 53-55 there is disclosed "digital information signals are bandwidth spread using a preselected pseudorandom noise (PN) spreading code to produce spread spectrum modulation signals. An exemplary communication system is a

"wireless data or telephone system that uses multiple satellite repeaters to receive communication signals from gateway type base stations and transfer them to one or more of a plurality of mobile or portable stations having receivers...The encoded signals may be combined with one or more orthogonal functions to provide channelization of the information signals." Applicants respectfully submit that this does little to cure the above-noted deficiencies at those passages relied upon by the Examiner which have been discussed above.

The Examiner goes on to say for claims 2-4 Harms discloses the following limitations:

- wherein said at least one feeder link is a return feeder link, as in claim 2, refer to 42, 46 and 48, col. 8, lines 15-18.
- wherein said at least one feeder link is a forward feeder link, as in claim 3, refer to 42, 46 and 48, col. 8, lines 15-18.
- wherein said destination comprises at least a beam of a forward service link, as in claim 4, refer to col. 2, lines 2-5, col. 9, line 2.

Applicants respectfully submit that at col. 8, lines 15-18, referring to elements 42, 44, 46 and 48, there is disclosed "The arrowheads on these lines illustrate exemplary signal directions for each communication link, as being either a forward or a reverse link, and are present only for purposes of clarity and not as indicating any actual signal patterns or physical restrictions."

Applicants respectfully submit that aside from disclosing the arrowheads in the drawings of Harms illustrate exemplary signal directions for each communication link as being either a forward or a reverse link for purposes of clarity, this disclosure does not cure the deficiencies of the rejections as they relate to claim 1 which has been demonstrated to be patentably distinguishable over the prior art which applies to claim 2 as well.

Applicants respectfully submit that nothing in elements 42, 46 and 48 or the disclosure at col. 8, lines 15-18 as recited above cures the deficiency with regard to the rejections as the Examiner has applied them to claim 1 which has been shown to be patentably distinguishable over Harms for reasons recited above which equally apply to claim 3.

Applicants respectfully submit that col. 2, lines 2-5 and col. 9, line 2, where there is disclosed "user signals transmitted within a satellite beam, or sub-beam, on a forward link. That is, each user transceiver has its own orthogonal channel provided on the forward link by using a unique 'covering' or 'channelizing' orthogonal code." and at col. 9, line 2 "satellite 'beam' and originates with gateways being serviced by the satellite.", do not cure the deficiencies of the rejections as they relate to claim 4, as is the case for claims 2 and 3,

and Applicants respectfully submit that claim 3 has been shown to be patentably distinguishable over Harms for the same reasons as recited above with regard to claim 1 from which it depends, and which reasons equally apply to claim 4.

Applicants gratefully acknowledge the allowance of claims 9-41 and accordingly direct the remarks which follow to claims 1-8 and 42.

The Examiner further states that claims 1-8 are objected to as being dependent upon a rejected base claim, see objection to drawings and claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants are at a loss to understand this rejection since claims 2-8 depend from independent claim 1 and the Examiner's concerns with regard to the grounds for objection and the drawings have been satisfied and therefore obviated, replacement drawing sheets having been submitted on two previous occasions.

Applicants Again Respond to Examiner's Arguments re Applicants' Position Previously Presented

The Examiner now contends that Harms discloses, in reference to Figs. 1 and 3, **the channel blocks** refer to col. 3, lines 59-61, CDMA, col. 1, lines 65-67, predetermined spreading waveform, (refer to "That is, each user transceiver **has its own orthogonal channel** provided on the forward link by using **a unique 'covering' or 'channelizing' orthogonal code. PN code based modulation techniques used in CDMA signal processing allow spectrally similar communication signals to be quickly differentiated**, col. 2, lines 3-30; a more detailed representation of an exemplary block correlator 142 is illustrated in Fig. 12. When a block of decoded outer PN code chips is transferred to correlator 142, where block of data (channel block) is associated, in Fig. 3, PN code 80 is used to combine with data. It also shows its origin 78 to destination 76 in Fig. 3, because PN is correlated at source of data and orthogonal is used to identify base station.

However, according to the Examiner, Harms discloses a set of **preselected pseudorandom noise (PN) code sequences is used to modulate (i.e., "spread") information signals over a predetermined spectral band** prior to modulation onto a carrier signal for transmission as communications signals. **PN spreading, a method of spread-spectrum transmission** that is well known in the art, produces a signal for transmission that has a bandwidth much greater than that of the data signal. In a satellite forward communications link (that is, in a communications link **originating at a gateway (origin) and terminating at a user terminal) (destination),** PN spreading codes are used to discriminate between signals transmitted by a gateway over different beams, and to

discriminate between multipath signals. These PN codes are usually shared by all communications signals within a beam, referring to col. 1, lines 45-60.

Applicants respectfully submit that at col. 3, lines 59-61 there is merely stated "Many systems package information bearing channels into blocks of bits, or 'frames', where frame synchronization is required before the bits can be used." At col. 1, lines 65-67 it is stated "In a typical CDMA spread-spectrum communication system, channelizing codes are used to discriminate between signals intended for different users within a cell or between user signals transmitted within a satellite beam, or sub-beam, on a forward link."

Applicants again respectfully submit that no where is it taught, suggested or implied as required by element 2 of claim 1 that there is "providing code division multiplexed channel blocks from said plurality of channel blocks using a predetermined individual spreading "waveform selected to indicate an origin and a destination of each of said plurality of channel blocks." Applicants respectfully submit that in col. 1, lines 65-67 there is disclosed "channelizing codes are used to discriminate between signals intended for different users" not selected to "indicate an origin and a destination of each of said plurality of channel blocks" as required in element 2 of claim 1. Furthermore, Applicants respectfully submit at col. 3, lines 59-61 there is merely indicated that "Many systems package information bearing channels into blocks of bits, or 'frames', where frame synchronization is required before the bits can be used" which does not teach, suggest or imply "providing code division multiplexed channel blocks from said plurality of channel blocks using a predetermined individual spreading waveform selected to indicate an origin and a destination of each of said plurality of channel blocks." Furthermore, Applicants respectfully submit that the combination of these two recitations, i.e., col. 3, lines 59-61 and col. 1, lines 65-67, which are relied upon by the Examiner are ineffective when combined to teach the second element of claim 1 as recited above. Furthermore, Applicants respectfully submit that at col. 2, lines 3-30 there is stated "That is, each user transceiver has its own orthogonal channel provided on the forward link by using a unique 'covering' or 'channelizing' orthogonal code." Thereafter, there is a discussion of Walsh functions used to implement the channelizing codes and a discussion of wideband CDMA techniques which overcome multipath fading and provide a relatively high signal gain. Applicants again conclude this alone, or in combination with the recitations at col. 3, lines 59-61 and col. 1, lines 65-67, does not teach, suggest or imply element 2 of claim 1. Furthermore, Applicants respectfully contend that the Examiner's interpretations relating to correlator 142 in Fig. 12 and remarks relating to Fig. 3, PN code 80, element 78, its origin, and 76, its destination, in Fig. 3 do little to cure these deficiencies.

Applicants respectfully submit that at col. 1, lines 45-60 of Harms it is disclosed "In a typical spread-spectrum communication system, one or more sets or pairs of preselected

"pseudorandom noise (PN) code sequences are used to modulate or 'spread' user information signals over a predetermined spectral band prior to modulation onto a carrier for transmission as communication signals....

"These codes are typically shared by all communication signals within a given cell or beam, and time shifted or offset between adjacent beams or cells to create different spreading codes."

Applicants respectfully contend that nothing in the disclosure of Harms at col. 1, lines 45-60, relied upon by the Examiner, teaches, suggests or implies "providing code division multiplexed channel blocks from said plurality of channel blocks using a predetermined individual spreading waveform selected to indicate an origin and a destination of each of said plurality of channel blocks;" as required in element two of claim 1, nor "routing individual ones of said code division multiplexed channel blocks to their destination in accordance with the individual predetermined spreading waveforms" as required in element four of claim 1.

In view of the above remarks, Applicants respectfully submit that all of the claims presently under prosecution have been seen to contain patentable subject matter and to be patentably distinguishable over the prior art of record.

Accordingly, Applicants respectfully request that this application be reviewed and reconsidered in view of the above remarks and amendments and that a Notice of Allowance be issued at an early date.

Respectfully submitted,

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